

GNSS calibration of NIMT receivers with respect to TL G1 (1016-2025)

Summary

From October to December 2025, Chunghwa Telecom Laboratories (TL) conducted a trip to calibrate GNSS equipment owned by National Institute of Metrology (Thailand) (NIMT). The trip started and finished at TL, providing closure with respect to the TL Group1 reference receivers. The operations and report of measurements are described in the [report by TL](#).

- **Final results for the calibrated systems**

The INTDLY values of the receivers given in Table 1 have been computed by TL based on the results of the Group 1 trip [1001-2022](#) for TL T5 (GPS, Galileo and BDS) and should not be updated to reflect later changes in the conventional INTDLY values of the reference receiver.

For a P3/E3/B3/PPP UTC link A-B involving any Group 1 and any receiver in this trip, the uncertainty resulting from the calibration, $U_B(A-B)$, is computed as

$$U_B(A-B) = (U_{CAL0}^2 + \Delta U_{CAL}(A)^2 + \Delta U_{CAL}(B)^2)^{1/2} \quad (1)$$

where $U_{CAL0} = 2.5$ ns is the conventional Group 2 value, and where ΔU_{CAL} (generally zero) is specified for each system.

Changes in the set-up of the receivers after the calibration must be accounted for as described in section A.3.6 of the most recent [BIPM calibration guidelines](#).

Table 1. Final P1/P2/E1/E5a/B1C/B2a INTDLY values from the 1011-2025 exercise. Values of REFDLY and CABDLY during the calibration are also indicated for reference. All values are in ns date in YYYY/MM/DD format. “Meas. Date” refers to the first day of the differential calibration, to which the calibration results can be applied. “Impl. Date” is the MJD when the results should be implemented in the receiver.

System	BIPM	Meas. date	INTDLY							REFDLY	CABDLY	Note	ΔU_{CAL}	Impl. date
			C1	P1	P2	E1	E5a	B1C	B2a					
MTTI	MTTI	2025/11/20	11.5	10.4	8.8	11.3	11.6	10.5	10.7	23.90	214.7		0.0	61101
MTME	MTME	2025/11/20	14.4	11.2	7.4	14.9	10.4	13.8	9.5	24.60	214.5		0.0	61101
MTTN	MTTN	2025/11/20	26.8	24.5	21.9	26.8	26.3	26.7	25.7	35.20	250.7		0.0	61101
MT01	MT01	2025/11/20	25.4	22.8	20.1	25.3	25.1	25.4	24.5	29.40	225.5		0.0	61101
MT02	MT02	2025/11/20	24.2	21.9	19.3	24.2	24.0	24.1	23.4	29.40	226.6		0.0	61101

Notes:

Version history

V1.0 2026/02/27: Publication of results from V1.0 of the TL report.